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Historic Resource Production From USDA Forest Service Northern and Intermountain Region Lands

David Calkin

Abstract

This paper presents long-term resource production from National Forests in the Northern and Intermountain Regions, Regions 1 and 4, respectively. A historical data series of timber harvest and grazing levels on National Forests and lumber production and prices for these regions is developed. Significant trends within the data set are examined. A simple model based on derived demand concepts is tested to identify periods of possible structural change within the stumpage markets for the Region 1 data. This information provides a baseline data set of interest to policymakers and researchers involved in analyzing the long-term resource production for Regions 1 and 4.

Introduction

The Northern and Intermountain Regions, Regions 1 and 4, respectively, of the USDA Forest Service comprise the eight-state area considered the "intermountain West" (see fig. 1). Region 1 includes 12 National Forests in northern Idaho, northeastern Washington, and Montana. Additionally, Region 1 includes four National Grasslands in Montana, North Dakota, and northwestern South Dakota. There are about 25,375,000 acres in the National Forest System in Region 1. Region 4 is comprised of southern Idaho, Nevada, Utah, and Wyoming with 1 National Grassland and 14 National Forests: 6 in southern Idaho, 1 in Nevada, 6 in Utah, and 1 in Wyoming. There are about 34,257,000 acres in the National Forest System in Region 4.

This paper presents the long-term data series of timber production and grazing for Regions 1 and 4. Additionally, lumber production and price by dominant species and harvest levels by ownership for Montana and Idaho are presented. Much of the data comes from archived data from Region 1 headquarters in Missoula, Montana, and Region 4 headquarters in Ogden, Utah. Additional sources include USDA Forest Service publications, university publications, and industrial organization newsletters.

The National Forests of Regions 1 and 4 are a defining feature of the intermountain West. Much of the area is rural, with many small- and medium-size communities dependent on National Forests for a large portion of their economic base. The National Forests provide timber, grazing, mineral resources, tourism, and recreation. Conflicting uses of the National Forest are currently receiving much public attention.

DAVID CALKIN is a graduate student in forest economics, Department of Forest Resources, Oregon State University, Corvallis, OR 97333. This work is the result of cooperation among the Pacific Northwest Research Station, Oregon State University, and the University of Montana.

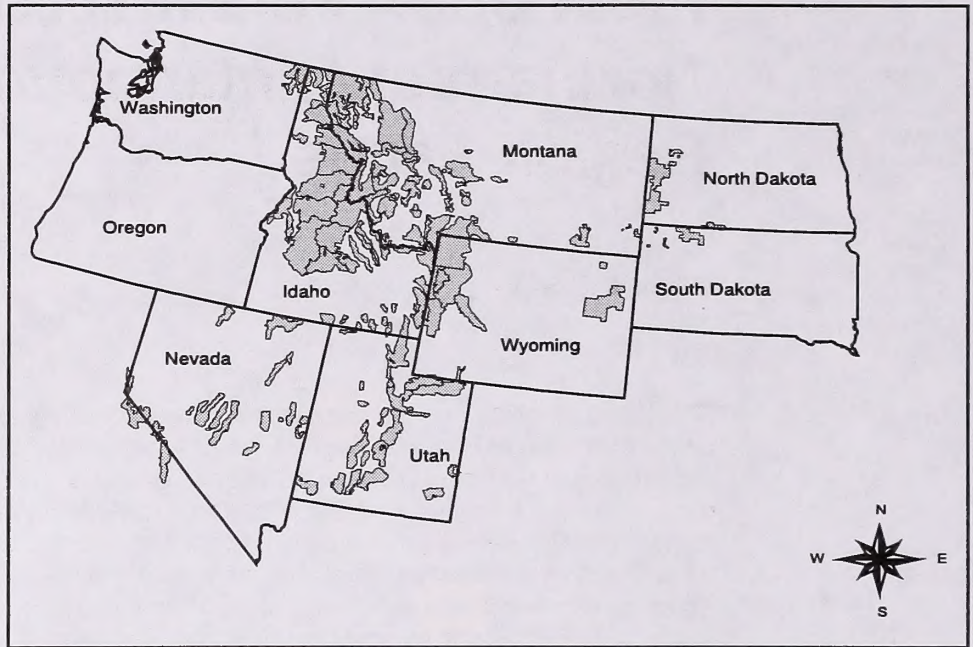


Figure 1—Map of Northern and Intermountain Regions.

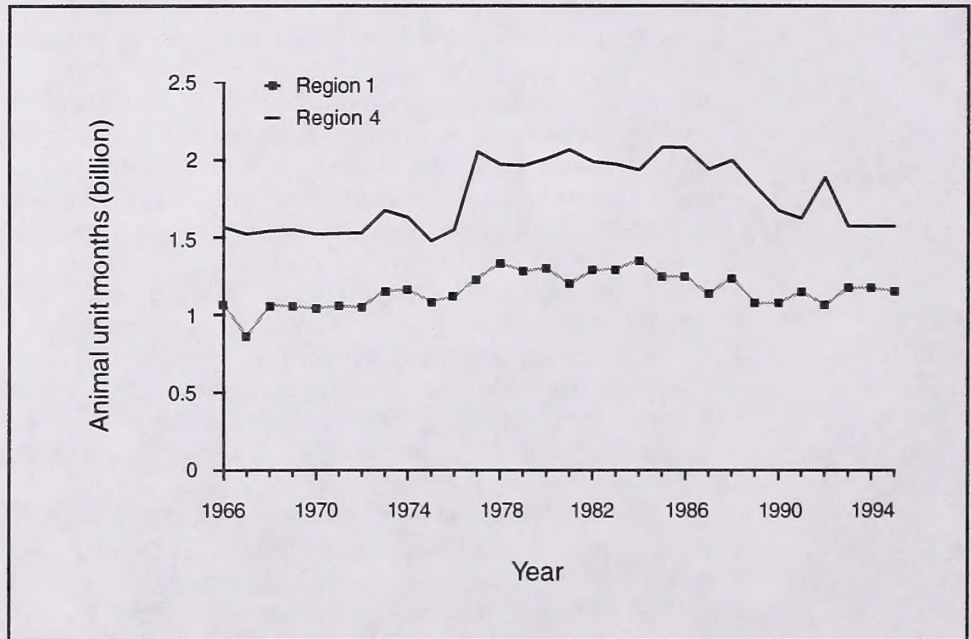


Figure 2—Grazing on National Forest lands.

These data series can facilitate the understanding of the long-term trends in resource production and impacts of National Forest management on economic development in these regions. They also present a picture of the events that have shaped the current state and composition of the land.

Data

Nine tables (2-10 in the appendix) and four associated graphs of the relevant data for grazing and timber production for Regions 1 and 4 are included. Historical grazing levels are presented for Region 1 in table 2 and for Region 4 in table 3¹ with graphic representation in figure 2. Timber harvest by ownership group for Region 1 is shown in table 4.² The Forest Service timber sale program volumes cut and sold with their associated prices are presented in table 5 (Region 1) and table 6 (Region 4). Figures 3, 4, and 5 give graphic presentation of the data in tables 5 and 6. Total timber harvest and Forest Service harvest in million board feet by state for Region 1 is given in table 7. Table 8 presents lumber volume in thousand board feet by species for Montana and Idaho with average price by species for Montana and Idaho given in table 9. Figures 6 and 7 are graphic representations of the data in table 8. The average current and real values for cut stumpage and lumber for Region 1 is shown in table 10.

Discussion

The National Forest System has undergone many important transitions in its management of public resources because of shifts in Federal mandates and changes in the U.S. economy. Some important trends can be observed in the compiled data sets. With knowledge of the management history of the Forest Service, many of the transitions that are observed in the data can be explained and understood.

Grazing levels on National Forests have been relatively stable through the historical periods as observed in figure 2. There is an observable trend of a gradual reduction in number of animals in both regions. Most of the reduction results from a drop in number of sheep grazed. A more accurate representation of total grazing would be animal months or animal unit months;³ however, the Forest Service revised the reporting of grazing levels in 1977, making long-term trend analysis difficult.

¹ U.S. Department of Agriculture, Forest Service. 1934-65. Annual grazing reports. Unpublished archived data. On file with: U.S. Department of Agriculture, Forest Service, Intermountain Region, Federal Building, 324 25th St., Ogden, UT 84401.

² U.S. Department of Agriculture, Forest Service. 1945-96. Annual timber harvest reports. Unpublished archived data. On file with: U.S. Department of Agriculture, Forest Service, Northern Region, Federal Building, P.O. Box 7669, Missoula, MT 59807.

³ The following are conversion factors to convert animal months to animal unit months: mature cow = 1.00, mature cow with nursing calf = 1.32, yearling (9-12 months) = 0.70, weaner calf = 0.50, bull = 1.50, mature sheep or goat = 0.20, ewe with lamb or nanny with kid = 0.30, horse or mule = 1.20. Conversion factors from 1977 annual grazing statistical use summary.

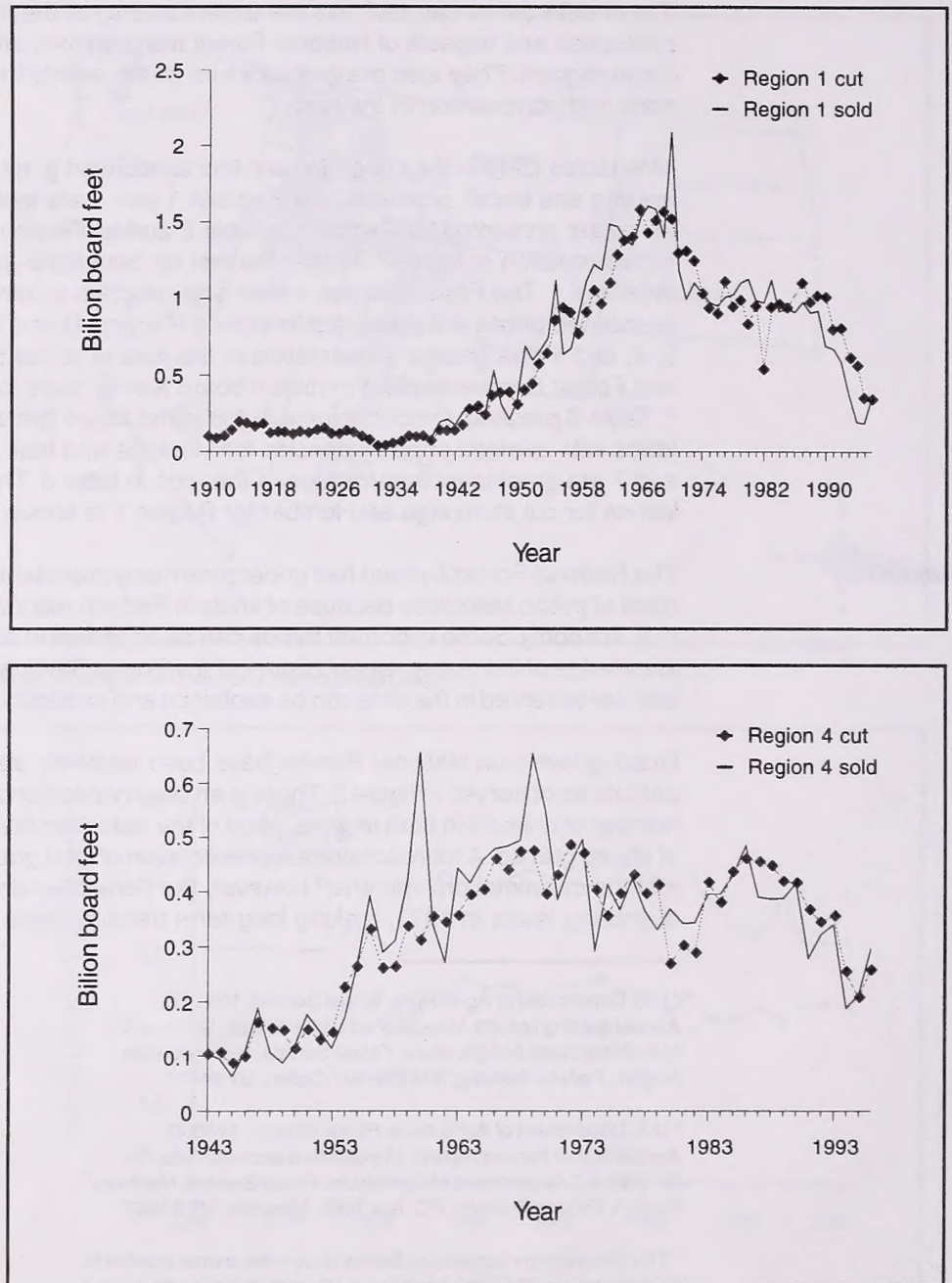


Figure 3—Volume of timber cut and sold on National Forests.

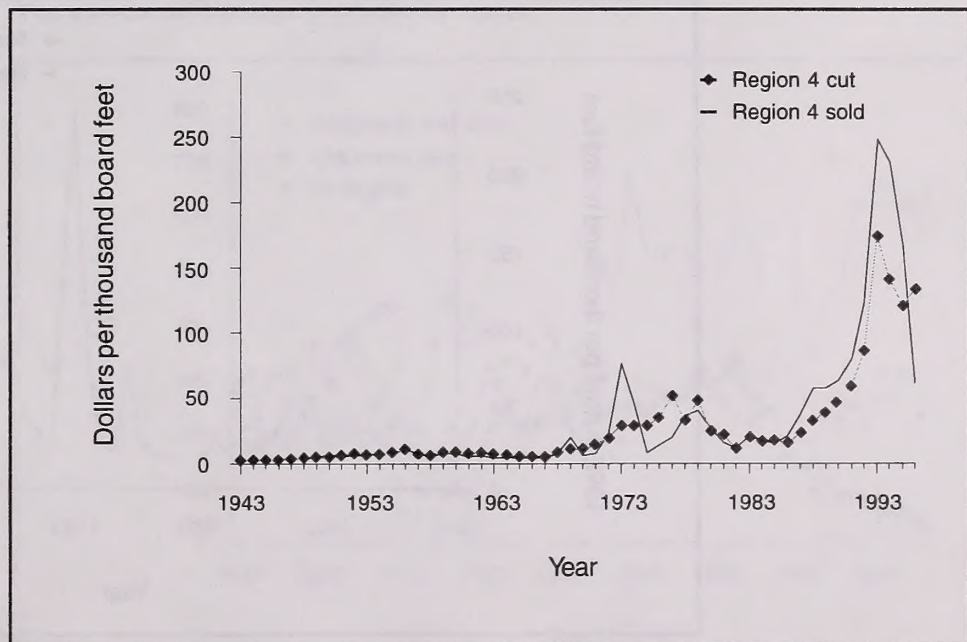
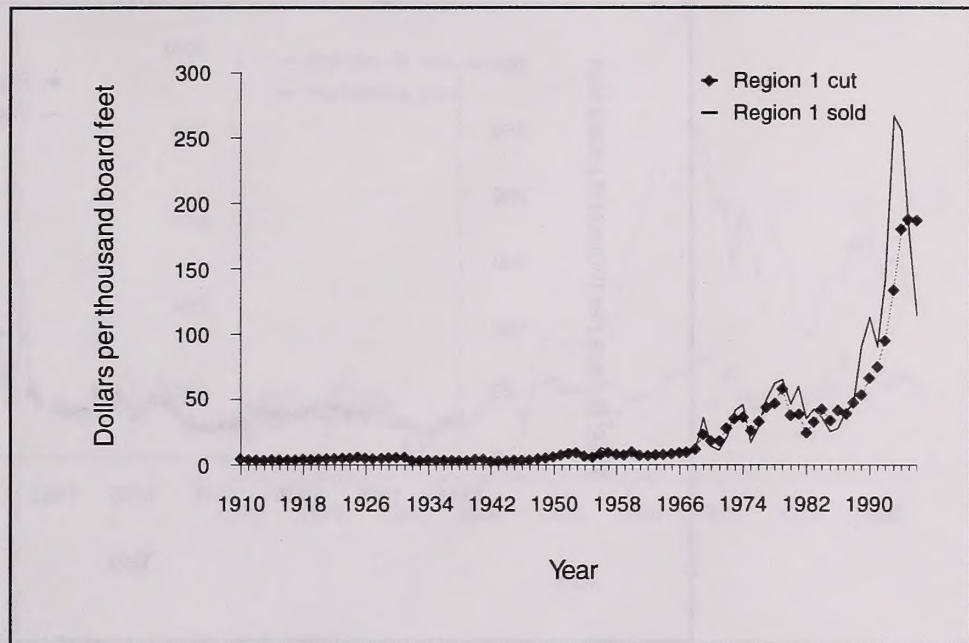


Figure 4—Average price for timber cut and sold on National Forests.

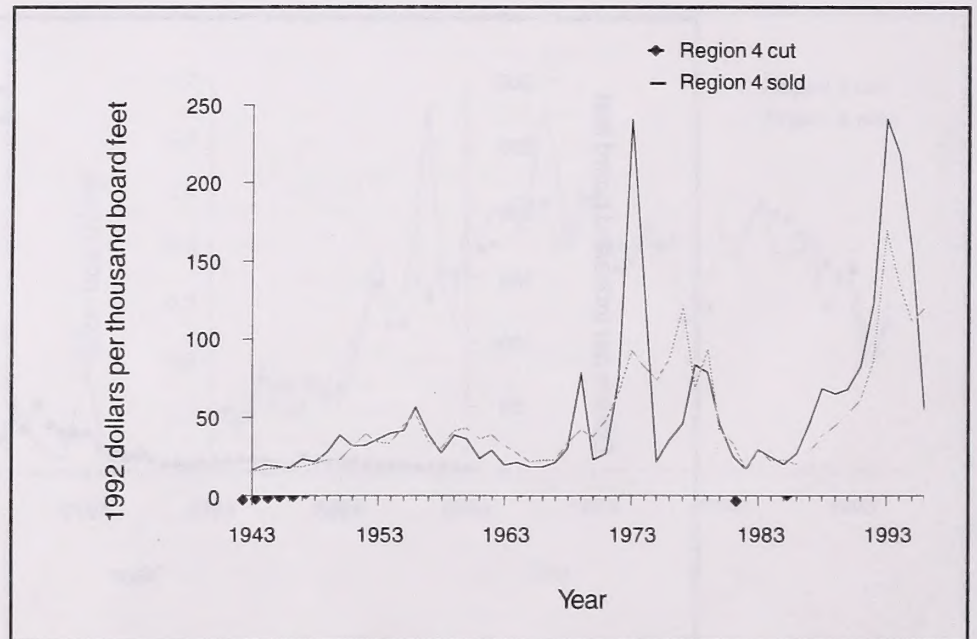
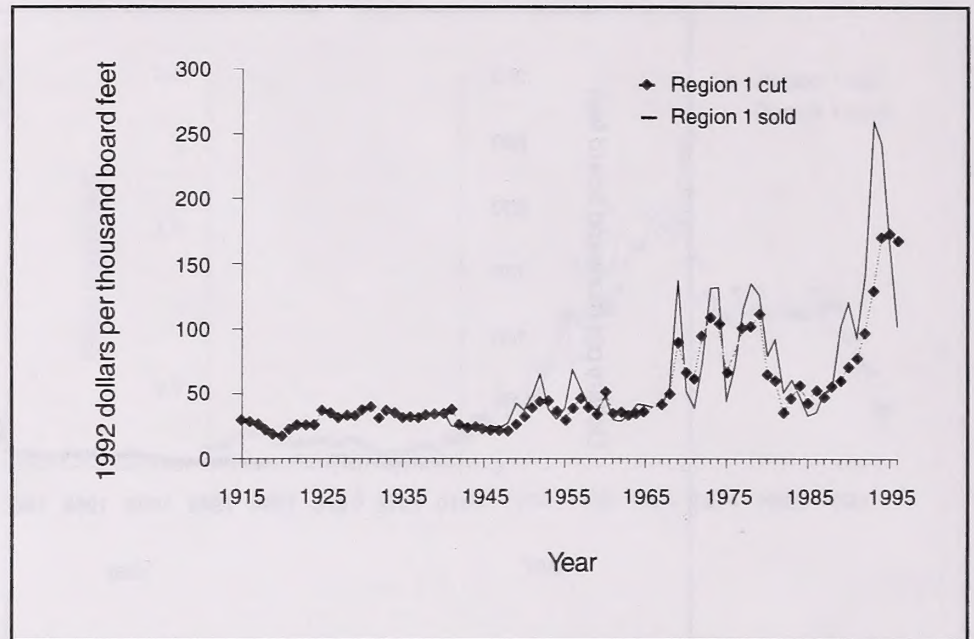


Figure 5—Real average price for timber cut and sold on National Forests.

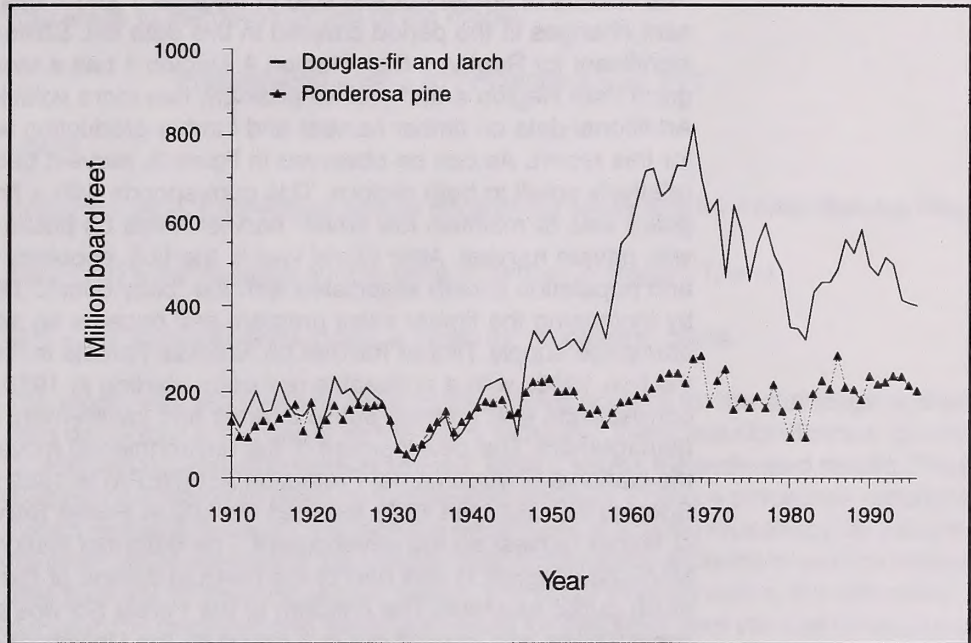


Figure 6—Lumber production in Montana by species.

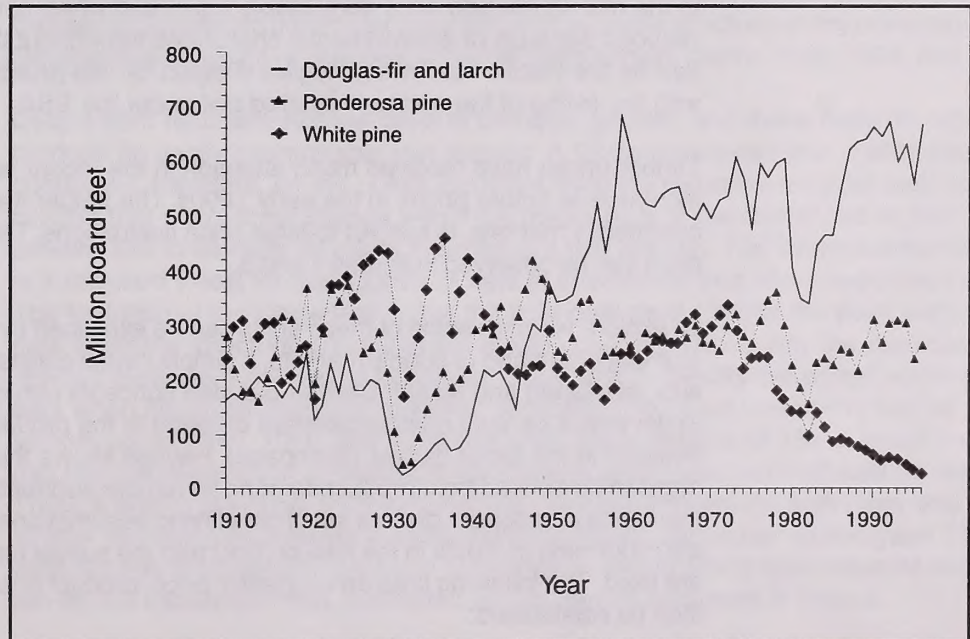




Figure 7—Lumber production in Idaho by species.



The volume of timber cut and sold in Regions 1 and 4 has undergone several significant changes in the period covered in this data set. Shifts in timber harvest are more significant for Region 1 than Region 4. Region 1 has a more substantial timber program than Region 4 and, not surprisingly, has more volatile timber production levels. Additional data on timber harvest and lumber production were available for Region 1 for this report. As can be observed in figure 3, harvest before World War II was relatively small in both regions. This corresponds with a time when Forest Service policy was to maintain low timber harvest levels on public lands to limit competition with private harvest. After World War II, the U.S. economy underwent rapid expansion, and population growth associated with the "baby boom." The Forest Service responded by increasing the timber sales program and became an active contributor to regional stumpage supply. Timber harvest on National Forests in Regions 1 and 4 peaked in the late 1960s with a noticeable reduction starting in 1970. The harvest reduction corresponds with growing public interest and involvement in issues of public forest management. The development of the environmental movement with the passing of the National Environmental Protection Act (NEPA) in 1969 and the Endangered Species Act (ESA) in 1973 required the USDA Forest Service to consider the impacts of timber harvest on the environment. The Bitterroot National Forest in western Montana (Region 1) was part of the clearcut debate of the late 1960s and received much public attention. The criticism of the Forest Service's management goals and assumptions was spelled out in a report by the University of Montana (1970). The report is often referred to as the "Bolle Report," named after the primary author Arnold Bolle, dean of the University of Montana School of Forestry. Timber volumes stabilized in the mid 1970s and were fairly stable until 1990 when harvest levels were again reduced because of environmental challenges throughout the United States exemplified by the Pacific Northwest Region (Region 6) "old-growth" controversy associated with the listing of the northern spotted owl under the ESA.



Timber prices have received much attention in the recent past because of the drastic increases in timber prices in the early 1990s. The timber market, like many other commodity markets, is subject to large price fluctuations. The volatility of stumpage price can be observed in figures 4 and 5.

To explore whether some of these shifts can be explained by structural changes in the stumpage demand or supply markets, a simple model consistent with Haynes (1977) was developed and tested. Derived demand concepts can be applied to forestry data to develop a general relation between demand in the product market (lumber) and demand in the factor market (stumpage). Haynes shows that factor demand for stumpage can be derived from product demand for lumber subtracted by a processing or marketing component given a set of simplifying assumptions. The assumptions are that the proportion of inputs in the final product and the supply function of marketing inputs are fixed. The following links among factor price, product price, and processing costs can then be established:

$$\text{Price(factor)} = \text{price (product)} - \text{processing costs.}$$

This leads to the development of the model:

$$P(\text{stumpage}) = c_0 + c_1 * P(\text{lumber}) + c_2 * \text{PPI} ,$$

where

$P(\text{stumpage})$ = the average annual price of cut stumpage for Forest Service Region 1,

$P(\text{lumber})$ = the average annual price of lumber in Region 1, and

PPI = the producer price index, a proxy for processing costs.

The model was estimated by using ordinary least squares for the stumpage and lumber data developed in this paper for the years 1910-95. Coefficient significance, goodness of fit, and serial correlation were examined. Table 1 shows the estimated results. The model also was estimated by using recursive least squares. This is a procedure, introduced in Brown and others (1975), in which the equation is estimated repeatedly, by using incrementally larger subsets of the sample data. Each model estimate is used to make a one-step forecast for the next sample period. The set of forecast errors, the difference between the predicted and the actual values for the dependent variable for each increment in the sample, are known as the recursive residuals. These residuals, the cumulative sum of these residuals (CUSUM), and the cumulative sum of squares of these residuals (CUSUM) of squares) all are examined for deviations from expected values. Deviations suggested parameter instability and possible structural shifts in the markets. Deviations seem to have occurred at the following sample points: 1945, 1968, and 1990.

Output from recursive residual tests is primarily graphic, and these tests do not produce an easily interpretable test statistic. A Chow breakpoint test (1960) was conducted, therefore, on the points identified from the recursive residual tests to confirm that a structural change within the parameters of the model was in fact present and to develop an easily interpretable test statistic. The Chow breakpoint test is a standard F-test for the equality of sets of coefficients in a linear regression model. The limitation of the Chow test is that the individual must identify the point within the data when the structural change in the model occurred. This is why the recursive residual tests were conducted before the Chow test to identify the points within the data when structural changes may have occurred. The Chow breakpoint test on the sample points 1946, 1969, and 1990 produced a test statistic of 134.6, which indicates that the null assumption of structural consistency within the model should be rejected. There is strong evidence, therefore, that the relation between the stumpage and lumber markets has undergone structural changes within the period analyzed. The data set was then broken down into subsamples, and ordinary least squares were run on the subsample data. Estimated results can be observed in table 1.

Table 1—Estimated coefficients for the regression of stumpage price with the price of lumber and processing cost, 1910-95 and subsamples for 1910-41, 1946-69, 1970-89, and 1990-95^a

Year	Coefficient	Standard error	t-statistic	Probability
1910-95:				
C1	-2.947	2.259	-1.305	0.196
C2	.458	.041	11.088	0
C3	-.666	.138	-4.832	0
	R-squared = .865			
1910-41:				
C1	2.709	.461	5.873	0
C2	.131	.0256	5.100	0
C3	-.159	.0390	-4.065	0
	R-squared = .476			
1946-69:				
C1	-17.00	4.139	-4.107	.0005
C2	.147	.0513	2.860	.0094
C3	.476	.186	2.563	.018
	R-squared = .662			
1970-89:				
C1	4.262	3.40	1.25	.227
C2	.255	.029	8.83	0
C3	-.309	.066	-4.67	0
	R-squared = .867			
1990-95:				
C1	-1235.7	236.1	-5.23	.014
C2	.264	.076	3.49	.040
C3	10.52	2.13	4.95	.016
	R-squared = .968			

Note: Model price (stumpage) = C1 + C2 * price (lumber) + C3 * PPI.

^aThe years 1942-45 were not analyzed in the subsample because of extensive price controls imposed during World War II.

This exercise revealed several possible structural shifts in the stumpage market, when the relation between the price of Forest Service stumpage has changed relative to the cost of lumber. The first shift observed in the data occurred during World War II. During World War II, price controls were imposed, and after World War II, the Forest Service became an active contributor to the regional stumpage markets. The introduction of significant volumes of Forest Service timber into the stumpage market created an outward shift in the stumpage supply market. The second shift occurred in 1969. Several explanations for a shift in the stumpage market in 1969 exist. In the late 1960s, Canadian imports of softwood lumber began to increase and had a significant impact on the price of softwood lumber in the 1970s and 1980s (Haynes 1990). As mentioned previously, the late 1960s saw an increase in citizen concern with public forest management. Additionally, the economic recession, slow housing starts, and high inflation of the early 1970s may have contributed to the shift in the stumpage markets. The reduction of Forest Service harvest beginning in the early 1970s shifted stumpage supply in, whereas the increase of Canadian lumber imports and slow housing starts, associated with the recession of the early 1970s, shifted the stumpage demand curve in. Finally, a shift was observed starting in 1990 as a result of supply shifting in because of the reduction of public timber harvest volumes associated with environmental challenges to the Forest Service's timber sales programs.

The composition of species in softwood lumber production in Region 1 shows some interesting trends. Figures 6 and 7 show that for Montana and Idaho, Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco) and western larch (*Larix occidentalis* Nutt.) have replaced ponderosa pine (*Pinus ponderosa* Dougl. ex Laws.) as the most significant species. In Region 1, the more valuable ponderosa pine are typically in the valley bottoms. As the low-elevation areas were cut, timber harvest shifted to more mountainous areas where Douglas-fir and larch dominate. It is also significant to note the drastic dropoff in the harvest of the Idaho white pine (*Pinus monticola* Dougl. ex D. Donn) from a high of 460 million board feet in 1937 to a low of 29 million board feet in 1996. The Idaho white pine is a valuable species with a substantial premium over Douglas-fir. White pine blister rust, caused by a fungus introduced in the 1950s, affected many of the Idaho white pine stands in northern Idaho. Mortality of white pine because of blister rust and historically high harvest levels resulted in the reduction of white pine harvest beginning in the mid 1970s and declining steadily up to the present.

Conclusion

Long-term resource production from National Forests in Regions 1 and 4 are presented in this report. Additional information relating to timber harvest and lumber production are presented for the states of Idaho and Montana. Significant trends within the data set are identified and possible causes discussed. A regression model was developed and tested to identify if structural change within the stumpage market in Region 1 occurred during the historical period covered by the data. Structural shifts within the data were observed. Changes in the Forest Service's timber sales volumes were associated with each period when a shift occurred and is likely to be at least partially responsible for the changes in the stumpage market. This information provides a baseline data set of interest to policymakers and researchers involved in the analysis of the long-term resource production for Regions 1 and 4.

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Appendix

Table 2—Annual grazing levels for USDA Forest Service, Northern Region (Region 1), 1966-96

Year	Cattle		Horse		Cattle and horse		Sheep		Total	
	Number	AUM ^a	Number	AUM ^a	Number	AUM ^a	Number	AUM ^a	Number	AUM ^a
1966					229,168	1,007,219	124,495	310,416	353,663	1,069,287
1967					206,501	804,126	114,912	281,228	321,413	860,370
1968					240,200	1,011,835	105,730	240,231	345,930	1,059,898
1969					240,819	1,001,936	101,743	248,725	342,562	1,051,680
1970					239,794	990,664	99,473	239,253	339,267	1,038,514
1971					246,676	1,011,282	91,930	219,795	338,606	1,055,241
1972					254,386	1,005,744	78,435	200,533	332,821	1,045,850
1973		1,080,401	20,822	23,136	258,513	1,103,537	76,737	201,583	335,250	1,151,491
1974	237,691	1,096,281	19,484	24,620	259,458	1,120,901	74,774	175,885	334,232	1,157,105
1975	239,974	1,043,975	15,990	23,329	253,293	1,067,304	67,738	137,202	321,031	1,080,420
1976	237,303	1,097,228	17,220	21,413	260,920	1,118,641	48,673	114,026	309,593	1,116,966
1977	243,700	1,187,539	18,481	17,466	252,739	1,205,005	47,263	30,468	300,002	1,235,473
1978	234,258	1,278,437	25,077	19,794	255,943	1,298,231	51,927	31,323	307,870	1,329,554
1979	230,866	1,229,054	27,070	24,428	242,182	1,253,482	50,072	27,077	292,254	1,280,559
1980	215,112	1,246,861	27,051	23,405	234,245	1,270,266	52,375	26,667	286,620	1,296,933
1981	207,194	1,148,295	27,918	21,211	228,929	1,169,506	43,138	26,635	272,067	1,196,141
1982	201,011	1,235,420	22,740	23,599	225,939	1,259,019	51,865	26,727	277,804	1,285,746
1983	203,199	1,242,610	21,568	22,082	217,381	1,264,692	37,748	25,001	255,129	1,289,693
1984	195,813	1,303,486	17,407	21,189	221,044	1,324,675	39,203	25,420	260,247	1,350,095
1985	203,637	1,194,018	18,823	23,977	209,715	1,217,995	37,988	24,640	247,703	1,242,635
1986	190,892	1,194,018	18,823	23,977	209,715	1,217,995	37,988	24,640	247,703	1,242,635
1987	179,922	1,085,712	18,239	21,142	198,161	1,106,854	35,361	22,197	233,522	1,129,051
1988	190,318	1,189,728	20,066	25,199	210,384	1,214,927	36,866	20,907	247,250	1,235,834
1989	181,006	1,018,325	21,488	30,955	202,494	1,049,280	32,328	22,479	234,822	1,071,759
1990	181,006	1,018,325	21,488	30,955	202,494	1,049,280	32,328	22,479	234,822	1,071,759
1991	184,989	1,092,484	18,318	32,837	203,307	1,125,321	28,890	19,312	232,197	1,144,633
1992	176,737	1,012,008	16,899	28,284	193,636	1,040,292	29,422	18,175	223,058	1,058,467
1993	192,248	1,126,069	20,672	28,253	212,920	1,154,322	28,332	15,291	241,252	1,169,613
1994	199,241	1,138,958	3,891	16,453	203,132	1,155,411	23,803	13,942	226,935	1,169,353
1995	188,497	1,118,954	3,427	15,228	191,924	1,134,182	24,529	12,523	216,453	1,146,705
1996	184,547	1,144,095	3,664	17,195	188,211	1,161,290	24,895	18,691	213,106	1,179,981

^a Animal unit months for fiscal year 1977-95; data for 1966-76 is for calendar year and reported in animal months.
Source: USDA FS 1966-93.

Table 3—Annual grazing levels for USDA Forest Service, Intermountain Region (Region 4), 1934-96

Year	Cattle		Horse		Cattle and horse		Sheep		Total	
	Number	AUM ^a	Number	AUM ^a	Number	AUM ^a	Number	AUM ^a	Number	AUM ^a
1934					360,998		1,736,556		2,097,554	
1935					343,195		1,590,228		1,933,423	
1936					331,497		1,546,305		1,877,802	
1937					330,549		1,513,361		1,843,910	
1938					322,630		1,455,539		1,778,169	
1939					316,852		1,442,037		1,758,889	
1940					315,505		1,410,453		1,725,958	
1941					313,310		1,369,994		1,683,304	
1942					320,271		1,381,739		1,702,010	
1943					320,670		1,390,420		1,711,090	
1944					330,566		1,395,815		1,726,381	
1945					329,652		1,372,668		1,702,320	
1946					330,116		1,312,851		1,642,967	
1947					323,963		1,283,523		1,607,486	
1948					327,425		1,282,588		1,610,013	
1949					316,639		1,216,267		1,532,906	
1950					308,052		1,179,479		1,487,531	
1951					308,464		1,179,354		1,487,818	
1952					315,550		1,195,362		1,510,912	
1953					315,408		1,172,096		1,487,504	
1954					314,868		1,180,363		1,495,231	
1955					316,949		1,163,049		1,479,998	
1956					314,508		1,125,869		1,440,377	
1957					302,245		1,015,977		1,318,222	
1958					298,592		1,052,445		1,351,037	
1959					299,592		1,031,748		1,331,340	
1960					310,506		1,062,109		1,372,615	
1961					305,816		1,053,653		1,359,469	
1962					306,692		1,050,326		1,357,018	
1963					322,142		1,048,873		1,371,015	
1964					317,938		1,046,325		1,364,263	
1965					315,578		1,034,706		1,350,284	
1966					317,535	1,054,379	1,035,588	2,555,927	1,353,123	1,565,563

Table 3—Annual grazing levels for USDA Forest Service, Intermountain Region (Region 4), 1934-96 (continued)

Year	Cattle		Horse		Cattle and horse		Sheep		Total	
	Number	AUM ^a	Number	AUM ^a	Number	AUM ^a	Number	AUM ^a	Number	AUM ^a
1967					317,315	1,043,907	1,007,746	2,378,129	1,325,061	1,519,532
1968					324,032	1,063,671	1,002,393	2,387,361	1,326,425	1,541,142
1969					335,409	1,074,680	992,971	2,372,081	1,328,380	1,549,094
1970					334,759	1,062,997	941,740	2,280,763	1,276,499	1,519,149
1971					341,195	1,081,528	930,421	2,221,497	1,271,616	1,525,825
1972					352,682	1,098,793	912,509	2,160,794	1,265,191	1,530,951
1973	308,440	1,095,407	52,181	26,831	360,621	1,122,238	873,433	2,071,415	1,234,054	1,671,947
1974	300,250	1,065,126	54,391	26,442	354,641	1,091,568	769,912	1,832,148	1,124,553	1,627,855
1975	324,135	1,093,668	52,706	30,071	376,841	1,123,739	867,298	1,761,640	1,244,139	1,476,799
1976	355,963	1,160,005	51,894	29,249	407,857	1,189,254	931,912	1,815,794	1,339,769	1,549,932
1977	329,552	1,484,136	48,354	43,698	377,906	1,527,834	736,549	523,609	1,114,455	2,051,443
1978	313,269	1,426,870	49,615	45,323	362,884	1,472,193	670,589	496,952	1,033,473	1,969,145
1979	319,113	1,422,584	40,611	40,423	359,724	1,463,007	627,669	500,019	987,393	1,963,026
1980	301,531	1,440,612	40,786	47,226	342,317	1,487,838	680,403	519,322	1,022,720	2,007,160
1981	309,846	1,474,942	38,658	44,985	348,504	1,519,927	683,539	543,859	1,032,043	2,063,786
1982	309,832	1,438,057	52,340	39,804	362,172	1,477,861	690,315	510,384	1,052,487	1,988,245
1983	315,223	1,438,569	38,319	46,762	353,542	1,485,331	665,683	487,572	1,019,225	1,972,903
1984	304,664	1,393,702	18,440	31,464	323,104	1,425,166	595,844	506,980	918,948	1,932,146
1985	319,795	1,520,118	26,834	19,252	346,629	1,539,370	622,052	540,228	968,681	2,079,598
1986	319,593	1,518,851	26,834	19,252	346,427	1,538,103	622,052	540,310	968,479	2,078,413
1987	295,626	1,421,723	8,538	24,331	304,164	1,446,054	586,377	490,632	890,541	1,936,686
1988	310,778	1,487,818	5,634	14,514	316,412	1,502,332	585,931	494,421	902,343	1,996,753
1989	285,260	1,333,987	3,050	19,573	288,310	1,353,560	585,019	471,802	873,329	1,825,362
1990	268,769	1,238,826	7,808	20,803	276,577	1,259,629	496,583	409,319	773,160	1,668,948
1991	262,350	1,189,177	3,027	19,757	265,377	1,208,934	499,507	409,093	764,884	1,618,027
1992	302,456	1,366,299	7,348	32,773	309,804	1,399,072	602,116	483,853	911,920	1,882,925
1993	285,420	1,239,340	2,925	12,654	288,345	1,251,994	565,377	318,403	853,722	1,570,397
1994	291,210	1,254,158	1,967	10,577	293,177	1,264,735	554,373	302,887	847,550	1,567,622
1995	291,210	1,254,158	1,967	10,577	293,177	1,264,735	554,373	302,887	847,550	1,567,622
1996	270,825	1,272,922	1,717	9,162	272,542	1,282,084	449,183	393,874	771,725	1,675,958

Animal unit months for fiscal year 1977-95; data for 1966-76 is for calendar year and reported in animal months.

Sources: USDA FS 1934-65 and USDA FS 1966-93.

Table 4—Timber harvest by owner for Montana and northern Idaho, 1945-96

Year	Montana					Northern Idaho						
	FS ^a	BIA ^b	BLM ^c	State	Private	Total	FS ^a	BIA ^b	BLM ^c	State	Private	Total
-----Thousand board feet-----												
1945	123,223	27,600	650	66,784	103,984	322,241						
1946	87,139	32,800	100	38,387	229,928	388,354						
1947	166,409	33,800	100	70,154	196,497	466,960						
1948	187,757	39,200	913	74,594	253,571	556,035						
1949	176,806	41,800	1,178	72,612	251,027	543,423						
1950	136,844	51,000	4,325	63,119	334,625	589,913						
1951	181,537	32,000	2,308	105,856	184,897	506,598						
1952	227,205	33,600	1,605	90,287	190,096	542,793						
1953	296,020	28,600	3,128	87,618	221,543	636,909						
1954	319,989	38,800	6,031	73,154	222,448	660,422						
1955	471,453	45,600	2,875	77,076	185,141	782,145						
1956	497,827	28,600	6,497	50,414	303,523	886,861						
1957	479,161	24,600	5,556	25,585	163,083	697,985						
1958	395,465	31,000	8,736	23,674	369,653	828,528						
1959	445,254	23,900	12,355	35,885	421,558	938,952						
1960	480,043	21,600	17,336	22,833	401,058	942,870						
1961	482,393	31,500	3,308	34,555	540,062	1,091,818						
1962	631,900	19,800	7,200	30,100	424,600	1,113,600						
1963	726,200	18,200	9,900	25,200	509,600	1,289,100						
1964	722,100	37,700	12,500	28,000	459,200	1,259,500						
1965	774,600	30,000	19,900	28,700	463,000	1,316,200						
1966	785,700	57,100	19,400	23,300	453,700	1,339,200						
1967	658,700	61,900	13,500	40,300	403,200	1,177,600						
1968	796,900	83,900	19,400	34,000	405,200	1,339,400						
1969	799,685	78,766	15,000	46,696	362,226	1,302,373	725,700	4,991	18,373	82,746	512,668	1,344,478
1970	654,406	55,635	12,000	28,219	343,053	1,093,313	545,807	5,669	10,933	127,328	520,222	1,209,959
1971	738,559	75,983	5,000	21,832	402,076	1,243,450	525,322	9,638	10,039	158,390	561,442	1,264,831
1972	558,003	82,773	4,339	31,857	406,628	1,083,600	484,597	11,868	8,262	130,976	609,900	1,245,603
1973	564,131	98,013	2,605	23,259	429,415	1,117,423	471,011	9,552	4,890	145,676	552,604	1,183,733
1974	495,341	82,663	3,298	7,581	499,400	1,088,283	482,964	19,960	7,829	157,596	624,590	1,292,939

Table 4—Timber harvest by owner for Montana and northern Idaho, 1945-96 (continued)

Year	Montana					Northern Idaho						
	FS ^a	BIA ^b	BLM ^c	State	Private	Total	FS ^a	BIA ^b	BLM ^c	State	Private	Total
-----Thousand board feet-----												
1975	444,542	48,644	4,847	9,764	500,903	1,008,700	388,112	4,225	20,716	86,598	731,698	1,231,349
1976	470,361	44,090	4,474	17,316	569,903	1,106,144	623,828	3,952	13,482	184,377	644,643	1,470,282
1977	498,862	45,986	4,095	18,825	556,809	1,124,577	503,593	4,063	17,445	155,025	665,818	1,345,944
1978	458,560	53,570	5,088	27,488	626,714	1,171,420	541,001	11,416	13,300	193,399	691,867	1,450,983
1979	451,685	42,589	5,417	28,272	567,466	1,095,429	494,859	8,938	13,900	134,471	691,462	1,343,630
1980	402,745	38,015	5,598	25,968	466,602	938,928	410,310	4,486	8,500	129,088	747,430	1,299,814
1981	426,638	38,000	9,060	28,852	434,011	936,561	417,370	8,646	13,000	130,810	672,054	1,241,880
1982	265,808	29,762	10,587	29,530	492,432	828,119	244,388	10,900	15,000	71,099	568,882	910,269
1983	502,465	37,922	14,803	27,140	568,738	1,151,068	435,190	19,171	18,000	146,986	628,645	1,247,992
1984	412,276	44,973	5,341	24,887	555,579	1,043,056	395,582	17,470	12,000	169,254	789,065	1,383,371
1985	504,177	18,843	7,923	26,045	560,099	1,117,087	402,332	14,080	13,400	155,460	573,210	1,158,482
1986	504,026	13,081	9,112	26,187	708,026	1,260,432	421,243	12,230	16,200	132,408	615,000	1,197,081
1987	602,863	24,020	6,608	55,615	687,360	1,376,466	454,924	18,904	15,400	151,506	648,683	1,289,417
1988	486,033	56,021	7,710	41,527	608,507	1,199,798	382,680	16,200	12,500	171,944	646,879	1,230,203
1989	520,939	70,787	6,472	43,950	636,663	1,278,811	493,629	13,450	13,800	216,818	730,335	1,468,032
1990	424,827	45,557	5,108	31,470	611,902	1,118,864	424,495	19,934	6,024	182,133	683,412	1,315,998
1991	317,532	43,773	7,071	26,893	523,916	919,185	443,926	15,831	8,444	135,625	751,782	1,355,608
1992	370,178	50,051	10,320	37,667	593,231	1,061,447	370,487	17,811	3,824	211,079	637,418	1,240,619
1993	277,905	36,749	4,759	19,832	636,192	975,437	293,796	11,890	509	183,648	691,199	1,181,042
1994	213,754	22,815	1,259	12,853	706,709	957,390	245,629	8,279	4,036	172,859	753,546	1,184,349
1995	144,958	41,809	2,938	14,594	693,234	897,533	152,426	12,733	4,106	172,100	729,300	1,070,665
1996	191,994	28,892	2,964	25,176	612,326	861,352	122,623	13,334	8,692	209,934	750,092	1,104,675

^a FS = U.S. Department of Agriculture, Forest Service.

^b BLM = U.S. Department of the Interior, Bureau of Land Management.

^c BIA = U.S. Department of the Interior, Bureau of Indian Affairs.

Sources: Flowers 1993 and USDA FS 1945-96.

Table 5—The USDA Forest Service Northern Region (Region 1) cut and sold volume and values, 1910-96

Year	Cut		Sold	
	Volume	Price	Volume	Price
	<i>Million board feet</i>	<i>Dollars per thousand board feet</i>	<i>Million board feet</i>	<i>Dollars per thousand board feet</i>
1910	99.8	3.15		
1911	89.2	2.80		
1912	108.5	2.36		
1913	147.7	2.14		
1914	197.2	1.99		
1915	184.5	2.13		
1916	162.5	2.20		
1917	183.9	2.36		
1918	122.9	2.35		
1919	126.9	2.31		
1920	127.1	2.40		
1921	113.0	2.92		
1922	127.4	3.11		
1923	124.8	3.18		
1924	142.0	3.14		
1925	149.5	4.62		
1926	118.9	4.45		
1927	116.8	3.78		
1928	140.3	3.99		
1929	121.2	4.03		
1930	97.6	4.49		
1931	73.1	4.31		
1932	32.4	3.05		
1933	38.3	3.39		
1934	54.3	3.33		
1935	70.8	3.05		
1936	102.4	3.17		
1937	96.5	3.20		
1938	100.6	3.39		
1939	70.7	3.42	94.9	3.10
1940	138.9	3.41	193.7	3.67
1941	134.9	3.96	213.8	2.61
1942	141.2	3.11	174.9	2.78
1943	179.4	2.86	259.7	3.34
1944	280.7	3.07	303.0	2.96
1945	296.5	2.99	247.6	3.02
1946	238.8	2.98	265.0	3.44
1947	369.1	3.40	523.8	3.71
1948	388.4	3.68	310.1	4.74
1949	388.3	4.57	211.0	7.15
1950	299.7	5.57	330.2	6.42
1951	408.5	7.34	689.8	9.07
1952	450.2	8.28	601.4	12.22
1953	574.3	8.52	658.7	7.27

Table 5—The USDA Forest Service Northern Region (Region 1) cut and sold volume and values, 1910-96 (continued)

Year	Cut		Sold	
	Volume	Price	Volume	Price
	<i>Million board feet</i>	<i>Dollars per thousand board feet</i>	<i>Million board feet</i>	<i>Dollars per thousand board feet</i>
1954	648.1	6.97	749.7	5.75
1955	864.9	5.61	1,108.7	7.39
1956	944.4	7.56	636.8	13.30
1957	910.1	9.24	679.4	10.76
1958	772.9	8.12	900.9	8.04
1959	902.5	7.07	1,115.3	7.79
1960	1,061.2	10.77	1,222.7	10.00
1961	967.8	7.50	1,187.4	6.37
1962	1,106.2	7.71	1,486.4	6.20
1963	1,295.2	7.27	1,471.6	7.48
1964	1,385.8	7.85	1,386.6	9.23
1965	1,402.1	8.32	1,353.9	9.26
1966	1,577.5	9.14	1,528.6	9.21
1967	1,435.5	9.92	1,606.5	9.92
1968	1,514.1	12.51	1,585.1	13.45
1969	1,565.6	23.24	1,404.7	35.74
1970	1,526.8	18.43	2,087.8	14.36
1971	1,303.1	17.75	1,185.6	11.27
1972	1,308.2	28.29	999.3	21.91
1973	1,254.3	34.43	1,107.3	41.43
1974	1,043.3	36.42	1,035.4	46.16
1975	939.2	25.55	974.2	17.29
1976	905.5	33.30	956.3	28.65
1977	1,113.1	43.44	1,011.5	49.74
1978	945.0	47.53	1,029.0	62.47
1979	994.4	57.63	1,106.2	65.08
1980	835.6	37.76	1,133.2	46.43
1981	955.0	38.56	994.3	59.68
1982	545.6	24.36	974.0	35.11
1983	947.4	33.30	1,125.1	42.88
1984	968.4	42.05	917.1	36.01
1985	944.3	33.40	937.8	25.43
1986	1,023.9	41.14	914.9	27.76
1987	1,104.4	38.57	981.2	40.81
1988	977.8	47.12	911.0	46.86
1989	1,024.3	53.19	922.6	90.12
1990	1,015.5	65.87	694.2	112.19
1991	799.4	74.88	672.5	90.94
1992	807.6	96.27	592.6	141.62
1993	617.3	133.43	381.2	266.98
1994	561.2	180.40	194.6	256.03
1995	350.3	188.05	188.2	176.27
1996	342.7	187.27	369.9	114.01

Source: USDA FS 1910-96.

Table 6—The USDA Forest Service Intermountain Region (Region 4) cut and sold volume and values, 1943-96^a

Year	Cut		Sold	
	Volume	Price	Volume	Price
	<i>Million board feet</i>	<i>Dollars per thousand board feet</i>	<i>Million board feet</i>	<i>Dollars per thousand board feet</i>
1943	105.3	1.88	103.4	1.99
1944	105.9	2.09	94.9	2.42
1945	86.0	2.21	62.7	2.40
1946	100.0	2.55	105.9	2.41
1947	161.9	2.92	186.9	3.68
1948	151.3	3.48	106.2	3.70
1949	146.0	3.86	87.1	4.66
1950	111.7	3.92	117.1	6.59
1951	147.1	5.85	175.8	5.88
1952	128.7	7.46	145.6	6.06
1953	141.7	6.51	114.0	6.92
1954	227.1	6.38	171.2	7.65
1955	270.2	8.50	272.6	7.91
1956	332.8	10.12	391.6	10.96
1957	260.3	7.00	289.3	7.81
1958	263.9	6.23	311.4	5.60
1959	338.2	8.64	422.0	7.95
1960	310.8	9.04	655.3	7.69
1961	354.0	7.66	341.6	5.02
1962	343.7	8.26	272.5	6.19
1963	357.2	7.03	444.5	4.26
1964	394.7	5.95	416.2	4.67
1965	405.0	4.84	457.6	4.02
1966	460.1	5.13	479.0	4.16
1967	441.0	5.33	484.3	4.99
1968	474.3	8.28	494.0	7.43
1969	477.0	11.01	652.7	20.32
1970	396.4	10.48	552.0	6.31
1971	435.4	14.00	386.8	7.73
1972	487.5	19.67	449.9	22.60
1973	470.7	29.26	495.8	76.14
1974	403.3	28.89	294.0	45.34
1975	356.7	28.20	413.4	8.26
1976	396.6	35.61	367.1	14.25
1977	431.4	51.95	424.6	19.81
1978	397.6	32.23	364.0	36.76
1979	412.7	48.16	330.2	40.60
1980	268.9	24.06	368.7	26.79
1981	301.3	21.62	342.0	16.05
1982	287.8	11.12	342.6	11.52
1983	417.2	20.09	395.4	20.87
1984	380.0	16.43	396.1	17.84
1985	438.2	17.47	428.7	15.11
1986	461.5	15.30	483.7	20.79

Table 6—The USDA Forest Service Intermountain Region (Region 4) cut and sold volume and values, 1943-96^a (continued)

Year	Cut		Sold	
	Volume	Price	Volume	Price
	<i>Million board feet</i>	<i>Dollars per thousand board feet</i>	<i>Million board feet</i>	<i>Dollars per thousand board feet</i>
1987	455.3	22.47	390.2	37.43
1988	449.4	32.27	386.8	57.68
1989	419.7	39.47	388.4	57.71
1990	415.8	48.35	415.0	63.32
1991	369.1	59.93	279.4	80.11
1992	344.1	86.52	320.8	123.13
1993	355.9	174.10	339.5	248.04
1994	251.5	141.90	189.2	230.79
1995	208.3	120.71	212.1	167.64
1996	262.0	134.04	299.4	61.33

^a Data for 1943-53, 1976, 1986, 1987, 1989, and 1990, and 1995 are for fiscal years; all others are calendar year data.

Source: USDA FS 1945-96.

Table 7—The USDA Forest Service Northern Region (Region 1) total harvest and Forest Service harvest, 1910-96

Years	Montana		Northern Idaho		Region 1			E. Washington	
	Total	FS	Total	FS	Total	FS	FS	FS	
-----Million board feet-----								Percent	MMBF
1910	302.2		536.9		839.1	99.8	11.89		
1911	216.6		551.0		767.6	89.2	11.62		
1912	257.9		514.4		772.3	108.5	14.04		
1913	339.0		470.1		809.1	147.7	18.25		
1914	300.9		549.2		850.1	197.2	23.20		
1915	310.6		559.6		870.2	184.5	21.20		
1916	363.4		612.2		975.6	162.5	16.65		
1917	331.4		547.1		878.5	183.9	20.93		
1918	322.2		577.4		899.6	122.9	13.66		
1919	272.8		550.8		823.6	126.9	15.41		
1920	389.1		698.7		1,087.8	127.1	11.69		
1921	202.8		391.0		593.8	113.0	19.03		
1922	293.3		618.7		912.0	127.4	13.97		
1923	412.3		772.2		1,184.5	124.8	10.53		
1924	337.6		732.8		1,070.4	142.0	13.27		
1925	370.6		820.7		1,191.3	149.5	12.55		
1926	359.0		681.7		1,040.7	118.9	11.43		
1927	375.1		665.0		1,040.1	116.8	11.23		
1928	367.1		703.3		1,070.4	140.3	13.11		
1929	368.0		740.1		1,108.1	121.2	10.94		
1930	281.1		605.0		886.1	97.6	11.01		
1931	149.7		359.6		509.3	73.1	14.34		
1932	105.1		178.7		283.8	32.4	11.43		
1933	118.4		227.7		346.1	38.3	11.07		
1934	162.8		328.9		491.7	54.3	11.04		
1935	221.2		438.3		659.5	70.8	10.74		
1936	279.4		520.6		800.0	102.4	12.80		
1937	317.1		574.1		891.2	96.5	10.83		
1938	209.7		410.6		620.3	100.6	16.22		
1939	256.7	24.7	485.7	46.0	742.4	70.7	9.52		
1940	308.0		556.7		864.7	138.9	16.07		
1941	354.0	40.5	656.2	94.4	1,010.2	134.9	13.35		
1942	409.9	59.5	669.4	81.7	1,079.3	141.2	13.08		
1943	400.8	94.5	640.1	83.6	1,040.9	178.2	17.12	1.2	
1944	424.5	132.1	655.6	141.3	1,080.1	273.4	25.31	7.3	
1945	322.2	123.2	561.4	159.3	883.6	282.5	31.97	14.0	
1946	388.4	87.1	621.8	145.9	1,010.2	233.0	23.07	5.8	
1947	467.0	166.4	683.4	184.0	1,150.4	350.5	30.46	18.7	
1948	556.0	187.8	793.8	185.5	1,349.8	373.2	27.65	15.2	
1949	543.4	176.8	755.8	194.1	1,299.3	370.9	28.55	17.4	
1950	589.9	136.8	905.9	134.8	1,495.8	271.7	18.16	28.1	
1951	506.6	181.5	735.0	184.8	1,241.6	366.3	29.50	42.2	
1952	542.8	227.2	778.2	175.7	1,321.0	402.9	30.50	47.3	
1953	636.9	296.0	823.5	226.9	1,460.4	523.0	35.81	51.3	
1954	660.5	320.0	993.6	273.0	1,654.0	592.9	35.85	55.2	

Table 7—The USDA Forest Service Northern Region (Region 1) total harvest and Forest Service harvest, 1910-96 (continued)

Years	Montana		Northern Idaho		Region 1		E. Washington	
	Total	FS	Total	FS	Total	FS	FS	FS
----- <i>Million board feet</i> -----							<i>Percent</i>	<i>MMBF</i>
1955	782.2	471.5	1,086.5	327.1	1,868.6	798.5	42.73	66.4
1956	886.9	497.8	1,132.5	392.6	2,019.4	890.4	44.09	54.0
1957	698.0	479.2	922.4	368.6	1,620.4	847.7	52.32	62.4
1958	828.5	395.5	993.9	308.1	1,822.4	703.6	38.61	69.3
1959	939.0	445.3	1,248.5	372.8	2,187.5	818.0	37.40	84.4
1960	942.9	480.0	1,146.4	495.0	2,089.3	975.0	46.67	86.2
1961	1,091.8	482.4	1,031.4	418.1	2,123.2	900.5	42.41	67.3
1962	1,116.9	631.9	1,095.1	435.4	2,212.0	1,067.3	48.25	109.7
1963	1,293.2	726.2	1,125.7	471.0	2,418.9	1,197.2	49.49	118.5
1964	1,259.5	722.1	1,171.2	534.9	2,430.7	1,257.0	51.71	140.6
1965	1,316.2	774.6	1,223.8	535.6	2,540.0	1,310.2	51.58	140.4
1966	1,339.2	785.7	1,300.3	645.3	2,639.5	1,431.0	54.21	133.6
1967	1,177.6	658.7	1,320.2	582.5	2,497.8	1,241.2	49.69	122.1
1968	1,339.4	796.9	1,353.7	667.2	2,693.1	1,464.1	54.37	114.2
1969	1,302.4	799.7	1,344.5	674.9	2,646.9	1,474.6	55.71	112.8
1970	1,093.5	654.4	1,210.0	658.6	2,303.5	1,313.0	57.00	136.2
1971	1,243.5	738.6	1,264.8	509.6	2,508.3	1,248.2	49.76	109.9
1972	1,082.1	558.0	1,245.6	516.7	2,327.7	1,074.7	46.17	115.3
1973	1,117.4	564.1	1,183.7	554.7	2,301.2	1,118.9	48.62	116.1
1974	1,088.3	495.3	1,292.9	424.5	2,381.2	919.8	38.63	81.4
1975	1,008.7	444.5	1,231.4	469.6	2,240.1	914.2	40.81	16.5
1976	1,106.1	470.4	1,470.3	453.7	2,576.4	924.1	35.87	7.6
1977	1,121.6	494.9	1,345.9	581.5	2,467.5	1,076.4	43.62	3.8
1978	1,165.0	452.1	1,451.0	493.8	2,616.0	946.0	36.16	6.0
1979	1,089.9	446.2	1,343.6	533.1	2,433.5	979.2	40.24	10.2
1980	938.9	402.8	1,299.8	406.3	2,238.7	809.0	36.14	8.8
1981	936.6	426.6	1,241.9	479.8	2,178.4	906.4	41.61	15.9
1982	828.1	265.8	910.3	252.7	1,738.4	518.5	29.82	4.6
1983	1,151.1	502.5	1,248.0	450.5	2,399.1	953.0	39.72	9.9
1984	1,043.1	412.3	1,383.4	422.2	2,426.4	834.5	34.39	10.6
1985	1,117.1	504.2	1,158.5	402.3	2,275.6	906.5	39.84	13.0
1986	1,260.4	504.0	1,197.1	421.2	2,457.5	925.3	37.65	9.3
1987	1,376.5	602.9	1,289.4	454.9	2,665.9	1,057.8	39.68	14.1
1988	1,199.8	486.0	1,230.2	382.7	2,430.0	868.7	35.75	9.0
1989	1,278.8	520.9	1,468.0	493.6	2,746.8	1,014.6	36.94	9.4
1990	1,118.9	424.8	1,316.0	424.5	2,434.9	849.3	34.88	23.0
1991	919.2	317.5	1,355.6	443.9	2,274.8	761.5	33.47	14.3
1992	1,061.5	370.2	1,240.6	370.5	2,302.1	740.7	32.17	15.6
1993	975.4	277.9	1,181.0	293.8	2,156.5	571.5	26.51	
1994	957.4	213.8	1,184.3	245.6	2,141.7	459.4	21.45	
1995	897.5	145.0	1,070.7	152.4	1,968.2	297.4	15.11	
1996	861.4	192.0	1,104.7	122.6	1,966.1	314.7	16.01	

Note: East Washington not included in Region 1 totals and percentage of Forest Service.
Sources: Flowers 1993 and USDA FS 1945-96.

Table 8—The USDA Forest Service Northern Region (Region 1) volume of lumber manufactured by major species

Year	Montana			Idaho				
	Douglas-fir	Larch	Ponderosa pine	Douglas-fir	Larch	Ponderosa pine	White pine	White fir
-----Thousand board feet-----								
1910	53,070	99,283	135,817	62,793	100,512	280,533	232,442	
1911	36,784	80,145	96,654	77,155	97,593	220,586	297,056	
1912	39,325	120,779	94,093	51,845	111,008	179,863	309,564	
1913	63,494	137,703	120,414	67,112	119,714	177,703	227,845	
1914	51,061	101,771	134,568	96,323	108,793	159,839	280,608	
1915	41,464	115,001	118,920	76,283	111,345	201,858	301,600	
1916	56,845	163,829	138,206	80,632	107,827	240,160	304,055	
1917	38,600	135,734	150,905	66,663	99,950	315,019	193,404	
1918	34,906	114,250	169,956	72,658	119,941	310,582	208,749	
1919	40,675	101,714	108,548	32,580	143,055	255,320	234,207	
1920	55,670	112,400	173,507	105,786	142,103	366,857	261,251	
1921	27,762	81,053	102,342	55,354	70,984	195,447	167,300	
1922	51,966	105,415	136,393	58,707	93,089	294,754	298,257	
1923	76,002	159,029	167,468	106,453	122,463	374,075	374,357	
1924	54,050	141,075	137,358	86,214	90,004	343,917	376,225	
1925	74,003	133,393	159,238	139,501	105,337	375,005	389,267	
1926	67,251	112,217	172,000	106,607	73,532	307,919	348,813	
1927	79,883	130,647	164,197	82,546	97,163	249,733	410,252	
1928	72,827	118,175	168,396	118,309	81,491	258,123	424,049	
1929	72,830	104,818	170,047	108,738	83,081	287,610	437,568	
1930	45,585	77,889	133,709	61,031	56,281	219,963	432,438	
1931	29,469	41,792	64,541	24,983	18,523	103,323	316,115	
1932	15,795	32,620	54,897	15,371	10,811	45,354	169,425	
1933	13,693	24,527	72,196	21,675	13,673	49,669	219,576	
1934	26,473	50,189	79,549	35,535	14,939	101,967	289,769	
1935	34,039	56,336	114,454	42,376	20,670	147,753	374,376	
1936	51,395	74,241	130,507	59,647	23,787	173,964	441,848	
1937	57,899	84,686	154,709	64,789	29,310	214,039	459,661	
1938	39,929	45,439	106,902	48,980	21,167	185,695	286,761	
1939	39,240	63,738	130,060	52,739	24,224	200,327	365,540	
1940	62,336	75,493	145,684	71,978	28,196	216,685	421,538	
1941	86,518	87,549	166,100	129,176	34,830	293,535	386,714	
1942	96,663	117,311	177,497	177,501	40,523	297,254	321,541	
1943	75,953	145,396	173,622	157,136	48,206	287,151	298,608	
1944	89,720	140,985	180,042	155,225	60,325	331,691	254,171	
1945	67,532	110,092	144,346	135,592	49,147	262,968	220,321	
1946 ^a	99,573		150,405	145,295		310,284	214,314	
1947	276,600		200,900	255,500		363,900	208,500	87,800
1948	340,100		223,600	302,700		417,100	225,100	115,900
1949	311,700		221,600	288,400		387,600	227,000	101,400
1950	342,900		230,500	379,900		364,900	289,500	162,400
1951	297,300		199,700	342,100		250,100	223,500	148,700
1952	306,000		199,200	345,400		238,300	208,400	196,900
1953	321,500		198,500	354,600		275,500	189,200	195,300
1954	292,800		162,700	411,700		342,100	218,100	212,900

Table 8—The USDA Forest Service Northern Region (Region 1) volume of lumber manufactured by major species (continued)

Year	Montana			Idaho				
	Douglas-fir	Larch	Ponderosa pine	Douglas-fir	Larch	Ponderosa pine	White pine	White fir
----- <i>Thousand board feet</i> -----								
1955	337,300		147,000	443,000		347,700	231,400	235,800
1956	383,700		156,800	523,300		303,700	184,300	304,600
1957	323,900		122,700	433,300		242,100	164,100	259,700
1958	429,200		151,100	522,200		248,300	184,300	279,300
1959	545,800		173,700	683,200		282,900	249,200	340,400
1960	569,000		177,400	620,800		260,800	248,300	347,200
1961	648,300		190,700	545,600		272,600	238,000	295,300
1962	714,900		184,700	522,400		287,000	250,900	354,200
1963	721,300		210,700	515,400		275,000	278,000	382,000
1964	656,200		232,400	539,900		274,600	267,300	377,200
1965	674,800		241,500	550,000		268,900	267,800	381,900
1966	727,800		241,100	554,100		291,700	267,700	389,900
1967	726,700		219,500	503,100		274,900	304,000	356,700
1968	821,800		276,100	492,400		297,500	320,200	375,300
1969	698,400		283,300	523,300		270,700	285,300	341,600
1970	619,300		171,500	495,900		265,000	298,100	311,600
1971	649,000		224,000	529,000		252,000	319,000	352,000
1972	471,000		252,000	537,000		299,000	337,000	384,000
1973	636,000		159,000	608,000		319,000	296,000	392,000
1974	576,000		183,000	568,000		278,000	219,000	288,000
1975	461,000		162,000	477,000		264,000	240,000	362,000
1976	549,000		189,000	596,000		311,000	243,000	409,000
1977	593,000		162,000	571,000		347,000	240,000	451,000
1978	520,000		215,000	597,000		360,000	179,000	455,000
1979	485,000		157,000	605,000		299,000	165,000	453,000
1980	349,000		94,000	403,000		226,000	142,000	322,000
1981	346,000		169,000	349,000		185,000	141,000	311,000
1982	321,000		96,000	339,000		153,000	98,000	290,000
1983	433,000		194,000	445,000		231,000	139,000	411,000
1984	455,000		225,000	465,000		240,000	113,000	460,000
1985	455,000		207,000	464,000		226,000	87,000	480,000
1986	488,000		284,000	548,000		255,000	91,000	509,000
1987	556,000		211,000	621,000		250,000	86,000	590,000
1988	525,000		201,000	635,000		216,000	79,000	636,000
1989	578,000		181,000	641,000		266,000	73,000	665,000
1990	494,000		234,000	663,000		311,000	66,000	602,000
1991	472,000		218,000	645,000		269,000	54,000	576,000
1992	514,000		222,000	671,000		303,000	56,000	548,000
1993	498,000		237,000	599,000		309,000	54,000	565,000
1994	414,000		235,000	631,000		303,000	45,000	509,000
1995	406,000		214,000	559,000		239,000	35,000	536,000
1996	400,000		201,000	667,000		262,000	29,000	514,000

^a In 1946 Douglas-fir and larch were combined into Douglas-fir.
Sources: 1910-48, Steer 1948; 1946-65, WPA; 1965-96, WWPA.

Table 9—The USDA Forest Service Northern Region (Region 1) value of lumber manufactured by major species

Year	Montana			Idaho				Average
	Douglas-fir	Larch	Ponderosa pine	Douglas-fir	Larch	Ponderosa pine	White pine	White fir
-----Dollars per thousand board feet-----								
1910	14.95	12.89	14.68	12.82	11.57	14.87	18.37	14.93
1911	11.70	12.02	14.45	11.95	10.58	14.45	17.57	14.42
1912	11.80	12.18	14.83	11.80	11.73	13.38	17.93	14.44
1915	12.15	10.79	13.33	10.05	8.89	12.37	17.34	13.16
1916	13.88	12.87	14.76	11.28	10.69	14.47	19.34	14.87
1917	16.40	16.38	18.80	14.78	14.60	18.51	25.56	18.78
1918	19.38	20.70	21.68	19.45	19.50	23.50	32.84	23.64
1919	22.60	22.61	22.92	20.97	22.15	27.53	35.99	26.94
1920	29.73	30.22	34.78	25.09	31.01	35.97	53.92	36.92
1921	17.41	15.20	22.90	16.99	14.10	23.14	38.60	23.81
1922	25.60	19.28	26.90	17.77	17.51	25.05	42.35	28.23
1923	20.71	22.36	29.62	20.72	21.38	32.05	45.17	31.19
1924	22.20	21.62	28.02	19.66	19.67	22.96	36.71	26.86
1925	18.12	16.38	24.88	19.32	19.64	25.53	37.04	25.89
1926	17.93	17.23	26.41	17.64	17.83	25.39	36.49	26.05
1927	17.47	17.14	25.03	17.91	18.93	21.66	33.15	24.40
1928	19.78	19.12	25.40	17.56	17.79	24.47	30.28	24.49
1929	18.21	17.92	26.37	19.29	18.00	25.96	31.53	25.44
1930	18.12	17.43	23.11	17.11	16.82	23.31	31.13	24.83
1931	16.52	13.99	20.78	15.61	14.37	17.80	26.63	21.96
1932	12.18	9.44	16.94	14.79	13.31	14.30	23.84	18.42
1933	12.43	12.61	18.24	16.94	14.03	17.25	22.22	19.25
1934	16.21	16.28	21.20	16.96	15.96	21.92	25.70	22.20
1935	16.81	16.79	22.61	16.49	17.40	20.54	27.46	23.14
1936	18.32	15.44	23.83	17.94	16.24	21.70	28.95	23.99
1937	15.22	16.39	23.09	18.51	17.96	24.56	32.84	25.68
1938	16.71	15.26	22.18	17.84	16.53	22.49	31.11	24.17
1939	17.04	16.63	23.60	18.18	16.49	22.56	29.18	24.07
1940	17.67	15.79	24.90	19.31	16.15	23.60	32.81	25.71
1941	21.33	19.38	27.67	22.29	19.29	27.34	37.46	28.46
1942	24.33	22.71	29.77	26.67	25.03	30.65	39.59	30.43
1943	27.24	28.12	33.49	29.46	29.25	34.07	42.16	33.69
1944	33.73	33.73	36.62	33.73	33.73	36.62	44.47	36.99
1945	33.64	33.64	36.72	33.64	33.64	36.72	45.19	37.25
1946 ^a	39.96		41.58	39.96		41.58	48.36	42.59
1947	57.63		58.12	57.63		58.12	72.64	59.70
1948	66.77		72.60	66.77		72.60	96.56	72.62
1949	59.70		69.37	59.70		69.37	102.64	68.83
1950	69.60		79.00	69.60		79.00	114.05	79.04
1951	72.57		92.57	72.57		92.57	127.54	86.50
1952	77.31		91.31	77.31		91.31	128.13	87.14
1953	73.33		92.17	73.33		92.17	133.24	85.32
1954	72.87		87.30	72.87		87.30	132.18	83.35
1955	80.26		90.74	80.26		90.74	133.46	88.42
1956	81.16		92.70	81.16		92.70	135.76	87.33

Table 9—The USDA Forest Service Northern Region (Region 1) value of lumber manufactured by major species (continued)

Year	Montana			Idaho				Average
	Douglas-fir	Larch	Ponderosa pine	Douglas-fir	Larch	Ponderosa pine	White pine	White fir
-----Dollars per thousand board feet-----								
1957	69.83		88.69	69.83		88.69	120.57	61.82
1958	68.57		85.41	68.57		85.41	111.01	60.51
1959	76.33		92.93	76.33		92.93	108.60	68.69
1960	71.41		88.08	71.41		88.08	101.80	60.10
1961	63.35		80.98	63.35		80.98	101.94	55.76
1962	66.27		82.83	66.27		82.83	104.07	57.99
1963	67.40		84.15	67.40		84.15	97.56	59.75
1964	68.10		84.92	68.10		84.92	93.69	59.50
1965	67.86		84.93	67.86		84.93	94.89	58.73
1966	71.18		88.00	71.18		88.00	101.78	62.46
1967	72.17		87.04	72.17		87.04	100.41	64.46
1968	90.35		101.82	90.35		101.82	112.02	81.63
1969	102.88		128.85	102.88		128.85	136.86	95.30
1970	79.82		108.81	79.82		108.81	130.41	71.30
1971	100.88		128.27	100.88		128.27	131.30	93.00
1972	122.17		151.96	122.17		151.96	162.51	113.54
1973	161.82		205.99	161.82		205.99	222.13	157.25
1974	142.56		205.49	142.56		205.49	236.38	131.84
1975	134.88		183.81	134.88		183.81	192.36	122.69
1976	170.59		241.89	170.59		241.89	243.41	156.74
1977	203.83		277.77	203.83		277.77	276.51	182.92
1978	233.72		349.66	233.72		349.66	349.56	215.95
1979	256.02		374.63	256.02		374.63	384.10	231.75
1980	214.38		338.16	214.38		338.16	327.53	196.09
1981	207.49		348.92	207.49		348.92	345.31	194.27
1982	174.04		301.48	174.04		301.48	325.40	168.44
1983	219.08		380.76	219.08		380.76	348.29	208.56
1984	203.25		365.80	203.25		365.80	368.42	187.69
1985	203.83		368.49	203.83		368.49	378.84	190.71
1986	208.69		415.27	208.69		415.27	442.01	205.46
1987	224.84		456.80	224.84		456.80	466.91	227.76
1988	235.49		457.11	235.49		457.11	461.35	229.27
1989	263.33		458.37	263.33		458.37	461.82	246.00
1990	250.55		428.01	250.55		428.01	449.60	237.75
1991	256.40		473.21	256.40		473.21	434.40	239.58
1992	301.57		593.56	301.57		593.56	522.59	285.05
1993	418.46		664.53	418.46		664.53	573.20	412.43
1994	426.58		732.81	426.58		732.81	616.59	399.03
1995	362.98		602.40	362.98		602.40	591.87	354.09
1996	415.22		597.02	415.22		597.02	563.95	395.19

* In 1946 Douglas-fir and larch were combined into Douglas-fir.

Sources: 1910-48, Steer 1948; 1946-65, WPA; 1965-96, WWPA.

Table 10—Average current and real cut stumpage and lumber price for Northern Region (Region 1), 1915-96

Year	Current		CPI ^b	Real ^a	
	Cut	Lumber		Cut	Lumber
	<i>Dollars per thousand board feet</i>			<i>1992 dollars per ---thousand board feet---</i>	
			<i>1992 = 1.000</i>		
1915	2.13	13.16	0.072	29.61	182.83
1916	2.20	14.87	.078	28.37	191.38
1917	2.36	18.78	.091	25.82	205.81
1918	2.35	23.64	.108	21.87	219.65
1919	2.31	26.94	.123	18.73	218.52
1920	2.40	36.92	.143	16.86	258.97
1921	2.92	23.81	.128	22.90	186.64
1922	3.11	28.23	.120	26.01	235.77
1923	3.18	31.19	.122	26.10	255.89
1924	3.14	26.86	.122	25.79	220.39
1925	4.62	25.89	.125	37.06	207.53
1926	4.45	26.05	.126	35.24	206.47
1927	3.78	24.40	.124	30.47	196.73
1928	3.99	24.49	.122	32.78	200.93
1929	4.03	25.44	.122	33.08	208.76
1930	4.49	24.83	.119	37.74	208.64
1931	4.31	21.96	.108	39.80	202.66
1932	3.05	18.42	.098	31.28	188.59
1933	3.39	19.25	.093	36.63	207.71
1934	3.33	22.20	.096	34.85	232.47
1935	3.05	23.14	.098	31.26	236.96
1936	3.17	23.99	.099	32.02	242.16
1937	3.20	25.68	.103	31.14	250.21
1938	3.39	24.17	.100	33.71	240.52
1939	3.41	24.07	.099	34.42	242.99
1940	3.41	25.71	.100	34.21	257.70
1941	3.96	28.46	.105	37.80	271.66
1942	3.11	30.43	.116	26.77	261.94
1943	2.86	33.69	.123	23.19	273.24
1944	3.07	36.99	.125	24.47	294.86
1945	2.99	37.25	.128	23.31	290.33
1946	2.98	42.59	.139	21.44	306.41
1947	3.40	59.70	.159	21.39	375.58
1948	3.68	72.62	.172	21.42	422.76
1949	4.57	68.83	.170	26.94	405.75
1950	5.57	79.04	.172	32.43	460.15
1951	7.34	86.50	.185	39.61	466.76
1952	8.28	87.14	.189	43.84	461.33
1953	8.52	85.32	.190	44.77	448.35
1954	6.97	83.35	.192	36.35	434.72
1955	5.61	88.42	.191	29.37	462.88
1956	7.56	87.33	.194	39.00	450.47
1957	9.24	78.04	.200	46.13	389.67
1958	8.12	75.13	.206	39.42	364.72

Table 10—Average current and real cut stumpage and lumber price for Northern Region (Region 1), 1915-96 (continued)

Year	Current		CPI ^b	Real ^a	
	Cut	Lumber		Cut	Lumber
	<i>Dollars per thousand board feet</i>		<i>1992 = 1.000</i>	<i>1992 dollars per ---thousand board feet---</i>	
1959	7.07	81.90	.207	34.09	394.85
1960	10.77	76.23	.211	51.05	361.33
1961	7.50	69.94	.213	35.19	328.16
1962	7.71	72.17	.215	35.82	335.28
1963	7.27	72.90	.218	33.33	334.23
1964	7.85	73.18	.221	35.53	331.21
1965	8.32	73.01	.225	37.06	325.17
1966	9.14	76.59	.231	39.58	331.66
1967	9.92	77.47	.238	41.67	325.41
1968	12.51	94.19	.248	50.44	379.73
1969	23.24	111.66	.262	88.84	426.86
1970	18.43	90.87	.277	66.64	328.59
1971	17.75	109.30	.289	61.49	378.65
1972	28.29	133.76	.298	94.95	448.95
1973	34.43	176.62	.316	108.80	558.11
1974	36.42	163.87	.351	103.65	466.34
1975	25.55	150.01	.383	66.63	391.21
1976	33.30	191.12	.406	82.11	471.24
1977	43.44	222.82	.432	100.57	515.88
1978	47.53	267.80	.465	102.28	576.27
1979	57.63	285.64	.517	111.37	552.00
1980	37.76	246.28	.587	64.29	419.33
1981	38.56	251.33	.648	59.52	387.92
1982	24.36	208.20	.688	35.42	302.70
1983	33.30	264.06	.710	46.91	371.97
1984	42.05	248.65	.741	56.78	335.76
1985	33.40	246.59	.767	43.55	321.53
1986	41.14	270.48	.781	52.66	346.25
1987	38.57	281.54	.810	47.64	347.71
1988	47.12	283.23	.843	55.88	335.90
1989	53.19	301.65	.884	60.18	341.30
1990	65.87	294.88	.932	70.71	316.54
1991	74.88	305.52	.971	77.13	314.72
1992	96.27	371.11	1.000	96.27	371.11
1993	133.43	481.70	1.030	129.55	467.70
1994	180.40	504.30	1.056	170.78	477.41
1995	188.05	421.51	1.086	173.12	388.05
1996	187.27	454.87	1.118	167.50	406.86

^a Real = deflated.

^b CPI = consumer price index.

Sources: Steer 1948, WPA 1946-65, WWPA 1966-97.

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Pacific Northwest Research Station
333 S.W. First Avenue
P.O. Box 3890
Portland, Oregon 97208-3890

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Pacific Northwest Research Station
333 S.W. First Avenue
P.O. Box 3890
Portland, Oregon 97208-3890

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